

CLAIMS

**We claim:**

1. Manganese dioxide for cathodes of lithium power sources, produced by manganese nitrate oxidation by sodium chlorate in nitric acid media with heating followed by separation from reaction mixture and thermal treatment characterized in that nitric acid concentration in the synthesis process is changed from 38-44% at the beginning and up to 23-26% at the end of the process, with bulk density of the manganese dioxide being 2.5-2.9 kg/dm<sup>3</sup> with integral particle size distribution in the range of 1-3 up to 60-70 µm, and its efficient conductivity is at least 3.4 S/m.
2. Manganese dioxide as in Claim 1, characterized in that a ratio between bulk density in (kg/dm<sup>3</sup>) and specific surface (m<sup>2</sup>/g) of said manganese dioxide is in the range of 0.08 – 0.40.
3. Manganese dioxide as in Claim 1, wherein its treatment is carried out in air at 240-320°C until the manganese dioxide has a concentration of 94-96% with simultaneous formation of an x-ray phase mixture of  $\gamma$  and  $\beta$  phases.
4. Manganese dioxide in Claim 1, wherein a mass density of cathodes based on said manganese dioxide is 2.7-2.9 g/cm<sup>3</sup>.

[SUBSTITUTE SPECIFICATION]

5. Manganese dioxide as in Claim 1, wherein the primary discharge of cathodes made from said manganese dioxide, in non-aqueous electrolyte, has a discharge capacity of up to 270 mA·h/g in terms of manganese dioxide.

6. Manganese dioxide as in Claim 1, wherein cycling a cathode made from said manganese dioxide in non-aqueous electrolyte provide a discharge capacity of 90 to 170 mA·h/g in terms of manganese dioxide.